

REMARKS

Please reconsider the application in view of the above amendments and the following remarks. Applicant thanks the Examiner for carefully considering this application.

Disposition of Claims

Claims 1-23, 25-47, 49-69, and 71 are pending in this application. Claims 1, 26, and 50 are independent. The remaining claims depend, directly or indirectly, from claims 1, 26, and 50. Claims 22, 46, and 68 have been cancelled in this reply. Claims 74-76 have been added in this reply.

Amendments to the Claims

Claims 1, 26, and 50 have been amended to include the limitation of claims 22, 46, and 68 respectively. Accordingly, claims 22, 46, and 68 have been cancelled. The new claims 74-76 are fully supported in paragraph [0030] – [0032] of the specification. Thus, claims 74-76 do not constitute new matter.

Rejection(s) under 35 U.S.C § 103

PALMBERG IN VIEW OF KESHAVAN OR HEDLUND

Claims 1-18, 20, 22, 23, 25-42, 44, 46, 47, 49-64, 66, 68, 69, and 71 were rejected under 35 U.S.C. § 103 as obvious over U.S. Patent No. 5,794,728 (Palmberg) in view of U.S. Patent No. 5,370,195 (Keshavan) or U.S. Patent No. 5,575,342 (Hedlund). Claims

1, 26, and 50 have been amended in this reply. To the extent that this rejection may still apply to the amended claims, the rejection is respectfully traversed.

Claims 1, 26, and 50 each recite a percussion drill bit having at least a first plurality of first inserts and a second plurality of second inserts. The exposed portions of the second inserts are appreciably different from the first inserts in profile and contact area. The differences are such that the second inserts generally penetrate the formation shallower than the first inserts during drilling. The bit head defines a first plurality of first cavities in which the first plurality of first inserts are disposed, and a second plurality of second cavities in which the second plurality of second inserts are disposed. The depth of the second cavities is greater than the depth of the first cavities.

The Examiner asserts that Palmberg discloses all of the present invention except for using a superhard material. The Applicant respectfully disagrees. Palmberg fails to disclose a first and second plurality of inserts. Palmberg discloses using large inserts on a percussion drill bit. The gauge inserts are asymmetrically positioned on the face of the percussion drill bit (column 3, lines 54-55). Gauge inserts and other inserts are only distinguished in location and orientation. Palmberg neither shows nor suggests a drill bit having exposed portions of second inserts that are “appreciably different from the first inserts in profile and contact area.” Additionally, Palmberg does not disclose a bit head defining a plurality of first cavities and a plurality of second cavities, which are different in depth. The Examiner has only asserted that Hedlund and Keshavan disclose using polycrystalline diamond to enhance the wear resistance of a drill bit.

In view of the above, Palmberg, Hedlund, and Keshavan, whether considered separately or in combination, fail to show or suggest the present invention as recited in

the claims as amended. Thus, claims 1, 26, and 50 are patentable over Palmberg in view of Hedlund or Keshavan. Dependent claims are allowable for at least the same reasons. Accordingly, withdrawal of this rejection is respectfully requested.

SKIDMORE IN VIEW OF KESHAVAN OR HEDLUND

Claims 1-18, 20-23, 25-42, 44-47, 49-64, 66-69, and 71 were rejected under 35 U.S.C. § 103 as obvious over U.S. Patent No. 3,955,635 (Skidmore) in view of U.S. Patent No. 5,370,195 (Keshavan) or U.S. Patent No. 5,575,342 (Hedlund). Claims 1, 26, and 50 have been amended in this reply. To the extent that this rejection may still apply to the amended claims, the rejection is respectfully traversed.

The Examiner asserts that Skidmore discloses all of the present invention except for using a superhard material. The Applicant respectfully disagrees. Skidmore fails to show or suggest a bit head defining a plurality of first cavities and a plurality of second cavities, which are different in depth. Advantageously, the present invention helps to reduce “catastrophic internal fatigue cracking” in the bit head (paragraph [0043]). The propagation of fatigue cracks results in the loss of inserts and premature failure of the drill bit. The Examiner has only asserted that Hedlund and Keshavan disclose using polycrystalline diamond to enhance the wear resistance of a drill bit.

In view of the above, Skidmore, Hedlund, and Keshavan, whether considered separately or in combination, fail to show or suggest the present invention as recited in the claims as amended. Thus, claims 1, 26, and 50 are patentable over Skidmore in view of Hedlund or Keshavan. Dependent claims are allowable for at least the same reasons. Accordingly, withdrawal of this rejection is respectfully requested.

ISAKOV IN VIEW OF KESHAVAN OR HEDLUND

Claims 1-19, 21, 23, 25-43, 45, 47, 49-65, 67, 69, and 71 were rejected under 35 U.S.C. § 103 as obvious over U.S. Patent No. 4,716,976 (Isakov) in view of U.S. Patent No. 5,370,195 (Keshavan) or U.S. Patent No. 5,575,342 (Hedlund). Claims 1, 26, and 50 have been amended in this reply. To the extent that this rejection may still apply to the amended claims, the rejection is respectfully traversed.

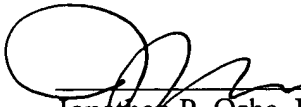
Claims 1, 26, and 50 have been amended to include the limitations of claims 22, 46, and 68 respectively. The Examiner has not asserted that claims 22, 46, and 68 are obvious over Isakov in view of Keshavan or Hedlund. Further, Isakov fails to show or suggest a bit head defining a plurality of first cavities and a plurality of second cavities, which are different in depth. As discussed above, the present invention helps to reduce the occurrence of catastrophic internal fatigue cracking of the bit head. Thus, claims 1, 26, and 50 as amended are patentable over Skidmore in view of Hedlund or Keshavan. Dependent claims are allowable for at least the same reasons. Accordingly, withdrawal of this rejection is respectfully requested.

Conclusion

Applicant believes this reply is fully responsive to all outstanding issues and places this application in condition for allowance. If this belief is incorrect, or other issues arise, the Examiner is encouraged to contact the undersigned or his associates at the telephone number listed below. Please apply any charges not covered, or any credits, to Deposit Account 50-0591 (Reference Number 05516/179001).

Respectfully submitted,

Date: 3/18/04


Jonathan P. Osha, Reg. No. 33,986
OSHA NOVAK & MAY L.L.P.
1221 McKinney Street, Suite 2800
Houston, Texas 77010
Telephone: (713) 228-8600
Facsimile: (713) 228-8778

63737_1